

What Is Claimed Is:

- 1 1. A method for using query signatures to provide security for a
2 database, comprising:
3 receiving a query at the database;
4 parsing the query to determine a signature for the query, wherein the
5 signature specifies a structure based on operations for the query and is
6 independent of the value of literals in the query;
7 determining if the signature is located in a signature cache, which contains
8 signatures for valid queries; and
9 if so, processing the query.

- 1 2. The method of claim 1, wherein if the signature is not in the
2 signature cache, the method further comprises triggering a mismatch alert.

- 1 3. The method of claim 2, wherein the mismatch alert throws an
2 error.

- 1 4. The method of claim 2, wherein the mismatch alert is sent to a
2 database administrator and the query is processed.

- 1 5. The method of claim 2, wherein the mismatch alert is sent to a
2 requesting application, thereby allowing the requesting application to take action.

1 6. The method of claim 1, wherein the signature cache is initialized
2 by recording signatures of valid transactions during a system initialization
3 operation.

1 7. The method of claim 1, wherein if the signature generates a
2 mismatch alert and if the query is a valid query, the method further comprises
3 allowing a database administrator to add the signature to the signature cache.

1 8. A computer-readable storage medium storing instructions that
2 when executed by a computer cause the computer to perform a method for using
3 query signatures to provide security for a database, the method comprising:
4 receiving a query at the database;
5 parsing the query to determine a signature for the query, wherein the
6 signature specifies a structure based on operations for the query and is
7 independent of the value of literals in the query;
8 determining if the signature is located in a signature cache, which contains
9 signatures for valid queries; and
10 if so, processing the query.

1 9. The computer-readable storage medium of claim 8, wherein if the
2 signature is not in the signature cache, the method further comprises triggering a
3 mismatch alert.

1 10. The computer-readable storage medium of claim 9, wherein the
2 mismatch alert throws an error.

1 11. The computer-readable storage medium of claim 9, wherein the
2 mismatch alert is sent to a database administrator and the query is processed.

1 12. The computer-readable storage medium of claim 9, wherein the
2 mismatch alert is sent to a requesting application, thereby allowing the requesting
3 application to take action.

1 13. The computer-readable storage medium of claim 8, wherein the
2 signature cache is initialized by recording signatures of valid transactions during a
3 system initialization operation.

1 14. The computer-readable storage medium of claim 8, wherein if the
2 signature generates a mismatch alert and if the query is a valid query, the method
3 further comprises allowing a database administrator to add the signature to the
4 signature cache.

1 15. An apparatus for using query signatures to provide security for a
2 database, comprising:
3 a receiving mechanism configured to receive a query at the database;
4 a parsing mechanism configured to parse the query to determine a
5 signature for the query, wherein the signature specifies a structure based on
6 operations for the query and is independent of the value of literals in the query;
7 a matching mechanism configured to determine if the signature is located
8 in a signature cache, which contains signatures for valid queries; and
9 a processing mechanism configured to process the query.

1 16. The apparatus of claim 15, further comprising a triggering
2 mechanism configured to trigger a mismatch alert.

1 17. The apparatus of claim 16, wherein the mismatch alert throws an
2 error.

1 18. The apparatus of claim 16, wherein the mismatch alert is sent to a
2 database administrator and the query is processed.

1 19. The apparatus of claim 16, wherein the mismatch alert is sent to a
2 requesting application, thereby allowing the requesting application to take action.

1 20. The apparatus of claim 15, further comprising a recording
2 mechanism configured to record signatures of valid transactions during a system
3 initialization operation.

1 21. The apparatus of claim 15, further comprising an adding
2 mechanism configured to allow a database administrator to add the signature to
3 the signature cache if the signature generates a mismatch alert and if the query is a
4 valid query.